Bion-M1

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Objective:

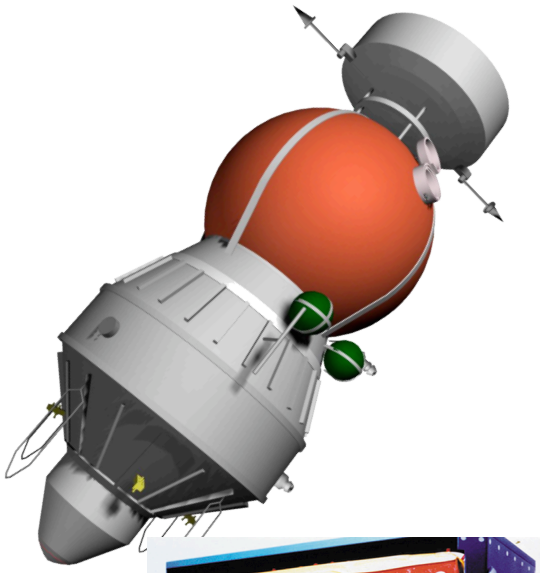
- To utilize the opportunity to participate in the Russian Bion-M1 mission to determine the effects of long duration spaceflight on rodents, specifically on the immune system and other major organs systems
- To continue a 30 year history of US/Russian collaboration in space biology and biomedicine and provide additional spaceflight opportunities to the US space life sciences community

Relevance/Impact:

- Fundamental space biology studies advance our knowledge of the effects gravity has had, and continues to have, on all terrestrial life. Knowledge gained in the use of animals provides the basic mechanisms of adaptation to changes in gravity, e.g. spaceflight. Such knowledge provides guidance in the formulation of risk mitigation strategies for long duration human spaceflight as well as potential new approaches to biomedical problems afflicting people on Earth.
- The Bion-M1 activity will help NASA sustain U.S. space life sciences' capabilities and leadership. The mission provides a relatively low cost opportunity utilize animal models of human disease, i.e., rodents to determine the mechanisms of immunosuppression that has typcially been observed in both animals and humans during and following spaceflght.

Development Approach & Outcome:

- NASA will establish a contract with the Russian Space Agency, Roscosmos to add four US-provided Animal Enclosure Modules to the overall complement of equipment to be carried onboard the Bion-M1 spacecraft. The contract will cover hardware integration and pre and postflight operational support. A separate Space Act Agreement and contract are planned with the Institute of Biomedical Problems, Moscow for the support of science operations in Moscow and also at the launch and landing sites.
- NASA will select science investigations via the NASA NRA Process and subsequently add Russian experiments that complement the scientific objectives of NASA's investigators.
- The AEMs will be modified from their Shuttle middeck configuration to conform to the requirements of the Bion Spacecraft.
- Final results of the scientific investigations will be shared among US and Russian collaborators and published in the open scientific literature.



Project Life Cycle Schedule

Milestone	NASA ATP	NRA Release	PDR	Complete NASA/RSA Contract	CDR	Flt Hdw Delivery	Launch	Landing
Baseline	8/17/07	10/31/07	4/23/08	8/13/08	7/22/09	1/26/10	9/10/10	10/7/10
Actual	8/17/07							